



bellavista™ 1000 neo

intensive care ventilator

TECHNICAL SPECIFICATIONS

 **vyaire**[™]
MEDICAL

bellavista™ 1000 neo

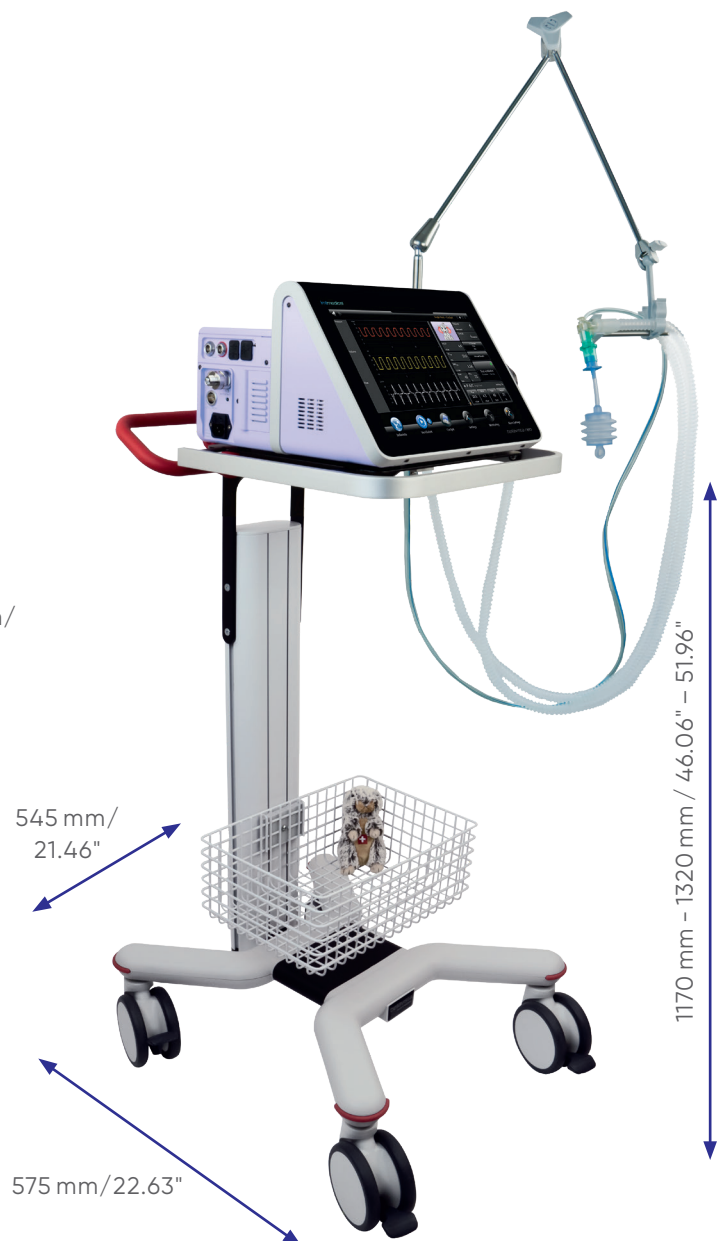
Intensive care ventilator

Maximum precision in volume and pressure control. Naturally, reliability and safety are always key in ventilation. One of the biggest challenges, though, is the ventilation of neonates: that is where maximum precision is required in volume and pressure control. For our smallest patients the bellavista 1000 neo combines the latest technology with precise delivery of air flow. The clear software architecture of bellavista also allows trouble-free function extensions by means of simple software updates. bellavista 1000 neo is thus a safe, comprehensive and future-proof ventilator with incomparable user-friendliness.

Area of application

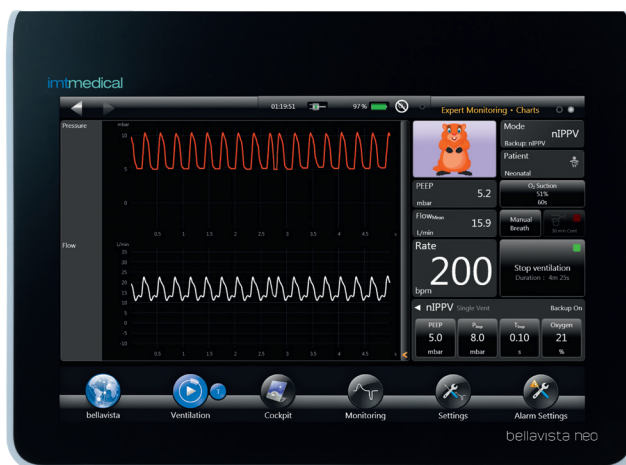
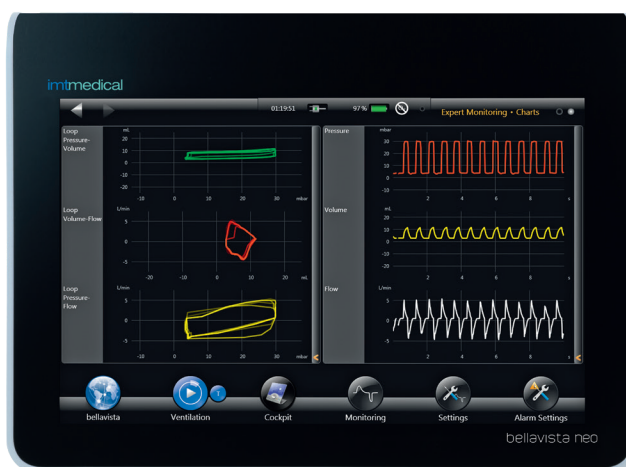
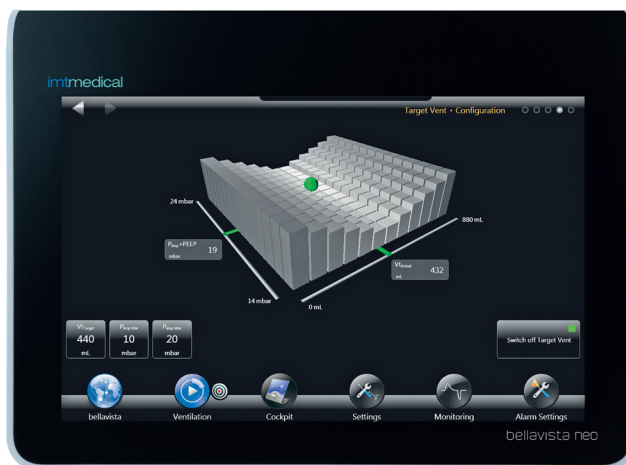
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|---------------------------|
| Intensive Care Unit (ICU) |
| Intermediate Care (IMC) |
| Emergency Room (ER) |
| Intra-Hospital Transfer |

Required space



Ventilation features and options

| | |
|--------------------|--|
| TargetVent | Precise and lung protective ventilation for patients with extreme low birthweight with a target volume from 2 mL. |
| Neo NIV | Spontaneous modes for mask use with full leakage compensation and disconnection detection. |
| nCPAP/nIPPV | Experience highly advanced nCPAP with apnoea and respiratory rate detection. Choose between two nCPAP generators (Infant Flow LP [®] , Medijet [®]) and between pressure or flow based nCPAP. |
| HFOT | High Flow Oxygen Therapy for neonatal patients with up to 60L/min and ramp function for a better flow adaptation. |
| Settings Assist | Graphical display of mode settings for better overview and forecast of dependencies of e.g. time, cycle and I:E ratio. |
| Profile settings | Up to 20 individually configured patient profiles can be stored in bellavista. |
| auto.rise | Automatic adaption of rise time with a breath by breath analysis. |
| auto.leak | Adaptive in- and expiratory leakage compensation. |
| Burst backup | nCPAP backup feature for more safety in neonatal nasal CPAP ventilation. |
| Night Mode | Configure your own night setting and dim alarm lights, screen brightness and alarm sound volume independently. |
| Circuits | Dual and single limb operation. |
| Parameter trending | bellavista enables you to store all trending parameters up to one year. |
| Real time trending | Real time data is recorded for 14 days. |



| Modes of Ventilation | Description | Invasive | Non-Invasive | Neonatal* |
|-------------------------------------|--|------------------------------------|--------------|-----------|
| Pressure Controlled | | | | |
| P-A/C | Pressure Assist Control Ventilation | ✓ | ✓ | ✓ |
| PCV | Pressure Control Ventilation | ✓ | ✓ | ✓ |
| PC-SIMV | Pressure Controlled-Synchronized Intermittent Mandatory Ventilation | ✓ | ✓ | ✓ |
| CPAP | Continuous Positive Airway Pressure | ✓ | ✓ | ✓ |
| PSV | Pressure Support Ventilation | ✓ | ✓ | ✓ |
| S | Spontaneous | ✓ | ✓ | ✓ |
| S/T | Spontaneous/ Timed | ✓ | ✓ | ✓ |
| T | Timed | ✓ | ✓ | ✓ |
| Volume Target | | | | |
| PSV _{Target} | Pressure Support Ventilation with Target Volume | ✓ | ✓ | ✓ |
| P-A/C _{Target} | Pressure Assist Control Ventilation with Target Volume | ✓ | ✓ | ✓ |
| PC-SIMV _{Target} | Pressure Controlled-Synchronized Intermittent Mandatory Ventilation with Target Volume | ✓ | ✓ | ✓ |
| S _{Target} | Spontaneous with Target Volume | ✓ | ✓ | ✓ |
| S/T _{Target} | Spontaneous Timed with Target Volume | ✓ | ✓ | ✓ |
| T _{Target} | Timed with Target Volume | ✓ | ✓ | ✓ |
| Non-invasive, nasal | | | | |
| nCPAP | nasal Continuous Positive Airway Pressure (Flow) | - | ✓ | ✓ |
| nCPAP | nasal Continuous Positive Airway Pressure (Pressure) | - | ✓ | ✓ |
| nIPPV | Nasal Intermittent Positive Pressure Ventilation | - | ✓ | ✓ |
| Oxygen Therapy | | | | |
| HFOT | High Flow Oxygen Therapy | - | ✓ | ✓ |
| beMode | | | | |
| DualVent | Automatic switching between two Modes | ✓ | ✓ | ✓ |
| Features | | Neonatal* | | |
| Peak inspiratory flow | | 40 L/min | | |
| Apnea Ventilation Modes | | P-A/C, PC-SIMV, nIPPV, PCV, S/T, T | | |
| Backup Modes | | PSV, Burst backup (nCPAP) | | |
| Flow pattern | | Decelerating | | |
| Inspiratory trigger | | Pressure, Flow, Off | | |
| Expiratory trigger | | Manual | | |
| Rise time | | Manual, auto.rise | | |
| Leakage compensation, auto.leak | | ✓ | | |
| Sidestream Capnography ² | | ✓ | | |

| Features | Neonatal* |
|---|-----------|
| SpO ₂ Plethysmography ¹ | ✓ |
| Screenshot function | ✓ |
| Touchscreen lock | ✓ |
| O ₂ suction | ✓ |
| Expiration valve reusable | ✓ |
| Expiration valve single-patient | ✓ |
| Oxygen Flush, configurable | ✓ |
| Integrated manual | ✓ |
| Integrated instruction videos | ✓ |
| Timer function | ✓ |
| Stopwatch | ✓ |
| Chameleon Modes* | ✓ |
| Tests | |
| Automatic system test during startup | ✓ |
| Circuit test | ✓ |
| CO ₂ sensor calibration | ✓ |
| Oxygen sensor calibration | ✓ |
| Curves | |
| Pressure airway | ✓ |
| Flow | ✓ |
| Volume | ✓ |
| SpO ₂ | ✓ |
| etCO ₂ | ✓ |
| P _{aux} | ○ |
| P _{es} | ○ |
| P _{TP} | ○ |
| P _{TA} | ○ |
| Loops | |
| Pressure/Volume | ✓ |
| Pressure/Flow | ✓ |
| Flow/Volume | ✓ |
| P _{es} /Volume | ○ |
| P _{TP} /Volume | ○ |
| P _{TA} /Volume | ○ |
| Trending | |
| Parameter trending | ✓ |
| Realtime trending | ○ |

| Features | Neonatal |
|----------|----------|
|----------|----------|

| Maneuvers | |
|-----------|--|
|-----------|--|

| | |
|----------------------------------|---|
| Manual breath | ✓ |
| Sigh | ✓ |
| Inspiratory Hold | ✓ |
| Expiratory Hold | ✓ |
| NIF (Negative Inspiratory Force) | ✓ |
| $V_{trapped}$ | ✓ |
| $P_{0.1}$ (Occlusion pressure) | ✓ |
| AutoPEEP | ✓ |
| Transpulmonary pressure | ○ |
| P_{TP}/P_{TA} | ○ |

| Graphics | |
|----------|--|
|----------|--|

| | |
|-----------------|---|
| TargetVent View | ✓ |
| Alarms | |
| VT/VT_{Exp} | ✓ |
| MV/MV_{Exp} | ✓ |
| P_{Peak} | ✓ |
| Rate | ✓ |
| FiO_2 | ✓ |
| Pulse | ✓ |
| SpO_2 | ✓ |
| $inCO_2$ | ✓ |
| $etCO_2$ | ✓ |
| Apnea | ✓ |
| Autoset | ✓ |
| Autoset Leakage | ✓ |

| Patient Circuit Type | |
|----------------------|--|
|----------------------|--|

| | |
|-------------|---|
| Single Limb | ✓ |
| Dual Limb | ✓ |

| Mesh Nebulizer Aereb* | |
|-----------------------|--|
|-----------------------|--|

| | |
|----------|----------------|
| Phase | Continuous |
| Duration | 30 min and 6 h |

General Settings**Neonatal**

| | |
|----------------------------------|---------------------------|
| P_{Insp} , IPAP | 2 – 60 mbar |
| P_{Support} | 2 – 45 mbar |
| CPAP | 4 – 30 mbar |
| PEEP, EPAP | 0 – 30 mbar |
| Pressure trigger | 0.1 – 15 mbar |
| Flow trigger | 0.1 – 20 L/min |
| Expiration trigger | 5 – 90 % |
| Oxygen | 21 – 100 % |
| Rate | 1 – 150 breaths/min |
| $\text{Rate}_{\text{Backup}}$ | 10 – 100 breaths/min, Off |
| Rise time | 0 – 400 ms, auto.rise |
| $T_{\text{Insp, I-time}}$ | 0.1 – 2 s |
| $T_{\text{Insp Max, I-timeMax}}$ | 0.3 – 2 s |
| V_{tTarget} | 2 – 250 mL |

nCPAP/nIPPV**Neonatal**

| | |
|-----------------------------------|--|
| Flow nCPAP | 2 – 18 L/min |
| Pressure nCPAP | 0 – 20 mbar |
| $\text{Burst}_{\text{Backup}}$ | 1 – 5 breaths/Off |
| PEEP | 0 – 20 mbar |
| P_{Insp} | 0 – 30 mbar |
| $T_{\text{Insp Man}}$ | 0.1 – 3 s |
| T_{Insp} | 0.1 – 3 s |
| Rate | 6 – 200 breaths/min |
| Rise Time | 0 – 400 ms |
| Interfaces | Infant Flow LP [®] , Medijet [®] |
| $P_{\text{TP}} / P_{\text{TA}}^*$ | Endotracheal tube 2.5 – 12 mm |
| Sigh | Sigh amplitude: 5 – 50 % Sigh interval: 10 – 200 breaths Sigh breaths: 1 – 5 |

HFOT**Neonatal**

| | |
|-----------|-----------------|
| Flow HFOT | 1 – 60 L/min |
| Ramp | 1 – 20 min, Off |

| Monitoring Parameters | Description | Range Neonatal | Resolution | Accuracy |
|-------------------------------------|--|---------------------|------------|-------------------------|
| P _{Peak} | Peak pressure during inspiration | 0 – 100 mbar | 1 | ±(2 mbar ±4 %) |
| P _{Mean} | Mean pressure during the entire respiratory cycle | 0 – 100 mbar | 1 | ±(2 mbar ±4 %) |
| P _{Plateau} | Plateau pressure (only available if plateau is >0) | 0 – 100 mbar | 1 | ±(2 mbar ±4 %) |
| P _{Insp} | Applied inspiratory pressure (relative above PEEP). | 0 – 100 mbar | 1 | ±(2 mbar ±4 %) |
| PEEP/CPAP | Positive end-expiratory pressure | 0 – 100 mbar | 1 | ±(2 mbar ±4 %) |
| Rate | Respiratory rate | 0 – 200 breaths/min | 1 | ±1 |
| T _{Insp} | Inspiration time | 0 – 100 s | 0.1 | 10 % |
| T _{Exp} | Duration of expiration | 0 – 100 s | 0.1 | 10 % |
| V _t | Leak-compensated tidal volume | 0 – 2500 mL | 1 | ±1 mL; ±10 % |
| V _{t_{Insp}} | Inspiratory tidal volume | 0 – 2500 mL | 1 | ±1 mL; ±10 % |
| V _{t_{Exp}} | Expiratory tidal volume | 0 – 2500 mL | 1 | ±1 mL; ±10 % |
| MV | Leak-compensated minute volume | 0 – 250 L/min | 0.001 | ±0.12 L/min; ±10 % |
| MV _{Exp} | Expiratory minute volume | 0 – 250 L/min | 0.001 | ±0.12 L/min; ±10 % |
| MV _{Insp} | Inspiratory minute volume | 0 – 250 L/min | 0.001 | ±0.12 L/min; ±10 % |
| T _{Insp} /T _{Tot} | Ratio of inspiratory time to duration of respiratory cycle | 0 – 100 % | 1 | 10 % |
| %Spont | % Spontaneous breaths per minute | 0 – 100 % | 1 | ±1 |
| Flow | Flow delivered in HFOT | 0 – 100 L/min | 1 | ±0.12 L/min; ±10 % |
| Flow _{Exp Peak} | Expiratory peak flow | 0 – 180 L/min | 1 | ±0.12 L/min; ±10 % |
| Flow _{Insp Peak} | Peak inspiratory flow | 0 – 180 L/min | 1 | ±0.12 L/min; ±10 % |
| Flow _{Mean} | Mean flow/min (nCPAP and nIPPV) | 0 – 100 L/min | 1 | ±0.12 L/min; ±10 % |
| PTP | Pressure Time Product | 0 – 100 mbar *s | 0.01 | – |
| I:E | Ratio of inspiration time to expiration time | 1:99 – 100:1 | 0.1 | 10 % |
| Leak % | Leak in % of the volume delivered to the patient | 0 – 100 % | 1 | – |
| Leak flow | Mean leak flow/min | 0 – 200 L/min | 1 | ±15 % |
| Pulse | Pulse rate (SpO ₂) | 0 – 300 1/min | 1 | ± 3 1/min |
| SpO ₂ | Oxygen saturation measured with pulse oximeter | 0 – 100 % | 1 | ± 3 % |
| etCO ₂ | End-expiratory CO ₂ | 0 – 15 % | 0.1 | ±0.2 vol % +2 % reading |
| inCO ₂ | Maximum inspiratory CO ₂ concentration | 0 – 15 % | 0.1 | ±0.2 vol % +2 % reading |

| Expert Ventilation | Description | Range Neonatal | Resolution | Accuracy |
|----------------------|--|----------------|------------|----------------|
| AutoPEEP | Pressure above PEEP measured at the end of the Hold _{Exp} maneuver. | 0 – 100 mbar | 1 | ±(2 mbar ±4 %) |
| NIF | Negative Inspiration Force. Minimal pressure below PEEP during a Hold _{Exp} maneuver. | 0 – -50 mbar | 1 | ±(2 mbar ±4 %) |
| P _{0,1} | Occlusion pressure 100 ms after trigger. | 0 – 100 mbar | 0.1 | ±(2 mbar ±4 %) |
| V _{Trapped} | Volume trapped in the lungs by AutoPEEP. | 0 – 2500 mL | 1 | ±10 mL; ±10 % |

| Expert Monitoring | Description | Range Neonatal | Resolution | Accuracy |
|---------------------------|---|---------------------|------------|--------------------|
| Rate _{Spont} | Respiratory rate of spontaneous breaths | 0 – 200 breaths/min | 1 | ±1 |
| T _{Insp Support} | Duration of inspiration in the case of pressure-supported breaths | 0 – 100 s | 0.01 | 10 % |
| %Spont 1h | % Spontaneous breaths over the last hour | 0 – 100 % | 1 | ±1 |
| %Spont 8h | % Spontaneous breaths over the last 8 hours | 0 – 100 % | 1 | ±1 |
| MV _{Insp Spont} | Inspiratory minute volume of spontaneous breaths | 0 – 250 L/min | 0.001 | ±0.12 L/min; ±10 % |
| MV _{Exp Spont} | Expiratory minute volume of spontaneous press | 0 – 250 L/min | 0.001 | ±0.12 L/min; ±10 % |
| MV _{Spont} | Leak-compensated minute volume of spontaneous breaths | 0 – 250 L/min | 0.001 | ±0.12 L/min; ±10 % |
| R _{Insp} | Inspiratory resistance | 0 – 300 mbar/L/s | 1 | |
| R _{Exp} | Expiratory resistance | 0 – 300 mbar/L/s | 1 | |
| C _{Stat} | Static compliance | 0 – 1000 mL/mbar | 0.1 | |
| WOB _{imp} | Work of Breathing imposed | 0.00 – 9.99 J/L | 0.001 | |

| Lung Mechanics | Description | Range Neonatal | Resolution | Accuracy |
|-----------------------------------|--|------------------|------------|----------|
| C ₂₀ /C _{Dyn} | A measure for potential overdistension of the lung | 0 – 900 % | 1 | |
| C _{Dyn} | Dynamic compliance | 0 – 1000 mL/mbar | 1 | |

| Esophageal Pressure Monitoring* | Description | Range Neonatal | Resolution | Accuracy |
|---------------------------------|---|------------------|------------|-----------------------------|
| P_{Aux} | Auxiliary pressure | -30 – +100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| ΔP_{es} | Delta esophageal pressure | 0 – 100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| $\Delta P_{TAS\text{Stat}}$ | Transalveolar tidal pressure (Driving pressure) | -50 – +100 mbar | 0.1 | |
| C_{TA} | Transalveolar compliance (Lung compliance) | 0 – 1000 mL/mbar | 0.1 | |
| C_{CW} | Chest wall compliance | 0 – 1000 mL/mbar | 0.1 | |
| $P_{es\text{Insp}}$ | Inspiratory esophageal pressure | -50 – +100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| $P_{es\text{Exp}}$ | Expiratory esophageal pressure | -50 – +100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| $PEEP_{TA}$ | Transalveolar PEEP | -40 – +100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| $P_{PT\text{Insp}}$ | Inspiratory transalveolar pressure (resistance compensated) | -50 – +100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| $P_{PT\text{Exp}}$ | Expiratory transalveolar pressure (resistance compensated) | -50 – +100 mbar | 0.1 | $\pm(2 \text{ mbar} + 4\%)$ |
| $P_{TA\text{Stat}}$ | Transalveolar plateau pressure | 0 – 100 mbar | 0.1 | |
| $P_{TA\text{Insp}}$ | Inspiratory transalveolar pressure | -50 – +100 mbar | 0.1 | |
| $P_{TA\text{Exp}}$ | Expiratory transalveolar pressure | -50 – +100 mbar | 0.1 | |

| Alarm Limits ³ | Neonatal | Autoset |
|---|--|----------------------|
| FiO_2 | High: 24 – 100 % Low: 18 – 80 % | $\pm 5\%$ |
| P_{Peak} | High: 7 – 65 mbar Low: Off, 1 – 55 mbar | $\pm 5 \text{ mbar}$ |
| $MV, MV_{\text{Insp}}, MV_{\text{Exp}}$ | High: 0.1 – 20 L/min, Off Low: Off, 0.01 – 19.9 L/min | $\pm 35\%$ |
| $Vt, Vt_{\text{Insp}}, Vt_{\text{Exp}}$ | High: 1 – 350 mL, Off Low: Off, 0.1 – 340 mL | $\pm 35\%$ |
| Rate | High: 2 – 210 breaths/min Low: Off, 1 – 210 breaths/min | $\pm 35\%$ |
| Apnea time | 4 – 60 s | n. a. |
| SpO_2 | 0 – 100 % | $\pm 5\%$ |
| Pulse | High 20 – 300 bpm Low: 15 – 295 bpm | $\pm 15 \text{ bpm}$ |
| $etCO_2$ | High: 0.1 – 15 % Low: 0.1 – 15 % | $\pm 1\%$ |
| $inCO_2$ | 0 – 15 % | |

Interfaces

| | |
|------------------------|--|
| RS232 | 2 |
| Ethernet | 100Mbit |
| USB | 2 |
| Nurse Call | ✓ |
| etCO ₂ | ✓ |
| SpO ₂ | ✓ |
| CAN Bus (Service) | ✓ |
| Connection protocols | VueLink, Intellibridge, HL7 |
| Dimensions (w × h × d) | 350 × 220 × 330 mm / 13.78 × 8.66 × 12.99 inch |
| Screen | 13.3" Color, Full HD touchscreen, TFT |
| Resolution | 1920 × 1080 pixels |
| Touchscreen | Capacitive, glass touchscreen |
| Battery time | Minimum 240 min. (internal) |
| Oxygen supply | 0–7 bar, 21.75–101.5 psi, 0–110 L/min |
| Oxygen connectors | DISS or NIST |
| Air inlet | Built-in turbine, 5 years unlimited warranty |
| Weight | 12.8 kg |
| Protection class | IP21 |
| Color | Purple / silver |
| Classification | Class IIb, EU-Guideline 93/42/EWG |
| Certificates | <p>CB certificate (by CSA) with fulfilment of following norms</p> <ul style="list-style-type: none"> • IEC 60601–1:2005 / AMD1:2012 • IEC 60601–1–6:2010 / AMD1:2013 • IEC 60601–1–8:2006 / AMD1:2012 • ISO 80601–2–12:2011 • ISO 80601–2–55:2011 • ISO 80601–2–61:2011 • Including national deviations for CA, KR and US <ul style="list-style-type: none"> • IEC 60601–1–2:2007 • IEC 60601–1–2:2014 • Including national deviations for EU, CA and US |
| Declaration | bellavista is certified according to a certified quality management system according to EN ISO 13485 and quality assurance system according to EU Directive 93 / 42 / EEC Annex II, excluding section (4) |
| Acoustic power level | 45.4 dBA (Single Limb), 50.8 dBA (Dual Limb) |
| Power input AC | 100–240 VAC, 50–60 Hz (80–264 VAC max. tolerance) |
| Power input DC | 24 VDC (20–29 VDC) / 3.5–6 A |
| Power consumption | 80–200 VA |

Software Options

| | |
|---|---|
| Expert Ventilation | ✓ |
| Expert Monitoring | ✓ |
| Lung Mechanics | ✓ |
| Neonatal advanced | ✓ |
| TargetVent | ✓ |
| High Flow Oxygen Therapy | ✓ |
| DualVent | ○ |
| ChameleonClassic | ○ |
| ChameleonGreen | ○ |
| DataCommunication | ○ |
| Auxiliary Pressure | ○ |
| Esophageal Pressure Monitoring | ○ |
| Diagnostics Package Pulse Oximetry (SpO2) | ○ |
| Diagnostics Package Capnography (CO2) | ○ |

Legend

| Standard | Optional | not applicable | not available |
|----------|----------|----------------|---------------|
| ✓ | ○ | | - |

NOTES

- * Optional
- 1 SpO₂ plethysmography not included
- 2 Capnometer not included
- 3 Complete overview of alarms in the user manual

Not all options are available in every country. Please contact your local dealer or contact us on www.vyaire.com for further information.

GLOBAL HEADQUARTERS

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